IT2120 – Probability and Statistics

Lab Sheet 8

IT24101750

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Exercise

```
setwd("C:\\Users\\dasit\\OneDrive\\Desktop\\IT24101750")
data<-read.table("Exercise - LaptopsWeights.txt", header=TRUE)
fix(data)
attach(data)

#Q1
popmean<-mean(Weight.kg.)
popsd<-sd(Weight.kg.)

popmean
popsd
```

```
> setwd("C:\\Users\\dasit\\OneDrive\\Desktop\\IT24101750")
> data<-read.table("Exercise - LaptopsWeights.txt", header=TRUE)
> fix(data)
> attach(data)
```

```
The following object is masked from data (pos = 3):

    Weight.kg.
```

```
> attach(data)
```

```
The following object is masked from data (pos = 3):

    Weight.kg.

The following object is masked from data (pos = 4):

    Weight.kg.
```

```
> #Q1
> popmean<-mean(Weight.kg.)
> popsd<-sd(Weight.kg.)
> popmean
[1] 2.468
> popsd
[1] 0.2561069
```

```r
#Q2
samples<-c()
n<-c()

for(i in 1:25){
  s<-sample(Weight.kg.,6,replace=TRUE)
  samples<-cbind(samples,s)
  n<-c(n,paste('s',i,sep=''))
}

colnames(samples)=n

s.means<-apply(samples,2,mean)
s.sd<-apply(samples,2,sd)

s.means
s.sd
```

```
> #Q2
> samples<-c()
> n<-c()
> for(i in 1:25){
+   s<-sample(Weight.kg.,6,replace=TRUE)
+   samples<-cbind(samples,s)
+   n<-c(n,paste('s',i,sep=''))
+ }
> colnames(samples)=n
> s.means<-apply(samples,2,mean)
> s.sd<-apply(samples,2,sd)
> s.means
      s1       s2       s3       s4       s5       s6       s7       s8       s9      s10      s11      s12      s13      s14      s15
2.540000 2.760000 2.383333 2.548333 2.515000 2.558333 2.536667 2.448333 2.460000 2.366667 2.311667 2.551667 2.411667 2.381667 2.495000
     s16      s17      s18      s19      s20      s21      s22      s23      s24      s25
2.525000 2.483333 2.371667 2.320000 2.375000 2.320000 2.343333 2.515000 2.336667 2.351667
> s.sd
       s1        s2        s3        s4        s5        s6        s7        s8        s9       s10       s11       s12       s13
0.2357965 0.1892089 0.3340459 0.2294704 0.2166795 0.1552310 0.2391373 0.2481465 0.2305645 0.4694536 0.3972111 0.1154845 0.2619478
      s14       s15       s16       s17       s18       s19       s20       s21       s22       s23       s24       s25
0.1849775 0.1492314 0.0747663 0.2697900 0.2380266 0.3634281 0.2383904 0.3647465 0.3143671 0.2437827 0.4034683 0.4142664
```

```r
#Q3
samplemean<-mean(s.means)
samplesd<-sd(s.means)

samplemean
samplesd
popmean
samplemean
popsd
samplesd
```

```
> #Q3
> samplemean<-mean(s.means)
> samplesd<-sd(s.means)
> samplemean
[1] 2.4554
> samplesd
[1] 0.09116565
> popmean
[1] 2.468
> samplemean
[1] 2.4554
> popsd
[1] 0.2561069
> samplesd
[1] 0.09116565
>
```